Videothoracoscopic Resection of a Mediastinal Parathyroid Adenoma

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ABSTRACT

Objective: The conventional approach to resection of anterior mediastinal masses is median sternotomy. Advances in thoracoscopy have made it possible to perform excision of mediastinal parathyroid adenoma using minimally invasive techniques.

Methods and Procedures: A 67 year old female was found to be hypercalcemic on routine chemistry analysis. Calcium levels were consistently elevated (range between 10.2-12.4) with an intact parathyroid hormone (PTH) of 721 (normal less than 54). Preoperative sestamibi parathyroid scan showed a focal area of intense increased uptake in the anterior mediastinum. CT scan of the chest showed a 2 cm soft tissue nodular mass in the anterior mediastinum. Initial intraoperative PTH level was 575.

Results: The patient was placed in a left lateral decubitus position with double lumen intubation and single lung ventilation. Four right-sided thoracic ports were placed (two 10 mm, two 5 mm). A parathyroid adenoma was excised with the thymus gland using the Autosonic shears (U.S. Surgical Corporation). The operative time was 1.5 hours with minimal blood loss and no intraoperative complications. Pathology confirmed an enlarged parathyroid gland (4.2 grams), consistent with adenoma. A repeat intraoperative PTH level 10 minutes following excision of the parathyroid adenoma was 122, which confirmed that all hyperfunctional parathyroid tissue was removed. The patient had an uneventful recovery and was discharged on the first postoperative day.

Conclusions: This video demonstrates the technical aspects of resection of a mediastinal parathyroid adenoma by a videothoracoscopic approach.

Use of a Video System with Twin Cameras and Picture-in-a-Picture for Laparoscopic Surgery

Dennis L. Fowler, MD

ABSTRACT

Objective: The purpose of this video is to demonstrate the utility of picture-in-a-picture technology using twin cameras during laparoscopic surgery.

Methods and Procedures: The video reviews the advantages of picture-in-a-picture technology during laparoscopic surgery and documents those with three examples of the use of the technology. These examples include colonoscopy at the time of laparoscopic colon resection, fluoroscopy at the time of laparoscopic spine surgery, and common bile duct exploration using choledochoscopy at the time of laparoscopic cholecystectomy. Additional suggestions for the use of the technology include esophago-gastroduodenoscopy at the time of laparoscopic upper GI tract surgery, laparoscopic ultrasound at the time of laparoscopy, and the use of a second laparoscope to obtain a second view of a single anatomic site.

Results: The use of twin cameras and picture-in-a-picture technology results in excellent imaging of two sites simultaneously or of the same site with two modalities.

Conclusions: The use of twin cameras and picture-in-a-picture technology can facilitate a laparoscopic surgical procedure by reducing equipment requirements in the operating room and by allowing the surgical team to remain focused on the task at hand.

A Cadaver Model for Laparoscopic Right Hemicolectomy

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ABSTRACT

Cadaver surgery is the logical initial step for the student laparoscopist. Although cadavers have been used to develop and modify techniques in laparoscopic colon surgery, laparoscopic teaching videos using the cadaver are currently not available. With inanimate object use for surgical education becoming more commonplace, more centers are developing programs for surgical resident education outside of the operating room. A resident's first "hands-on" experience with a laparoscopic procedure should be in the cadaver model. The following preliminary video is meant to facilitate this first training session. This video is one more step in the process of developing more effective educational opportunities for surgeons outside of the operating room. Demonstrated in this video is the technique for laparoscopic right hemicolectomy in the cadaver. An open cadaver model is used intermittently throughout the video to orient the student to the laparoscopic viewpoint. Throughout the tape, viewpoints shift between the open and laparoscopic approaches.

The omentum is grasped and repositioned in the left upper quadrant. Using the endobabcock, the small bowel is repositioned in the left upper quadrant. The retroperitoneal attachments are traced cephalad, medially and to the left toward inferior edge of the duodenum. To begin the medial dissection of the mesentery, the terminal ileum is grasped dorsally and placed under tension. Dissection of the mesentery is begun just medial to the base of the appendix and carried cephalad, medially and toward the inferior edge of the duodenum. The duodenum is dissected free from the surrounding connective tissue. An incision is made superior to the ileocolic artery in a consistent, avascular 'window'. Likewise, an inferior window is created. Laparoscopically,

the vessels are examined from their ventral aspect. Superior and inferior windows are produced sharply and bloodlessly. The ileocolic artery is completely skeletonized. The ileocolic artery is retracted laterally to provide tension for stapling. It is dissected free 10 to 15 mm from its origin on the superior mesenteric artery. The 30 mm Endo GIA stapler is used to divide the ileocolic vasculature. The lateral peritoneal attachments are divided. The right colon is completely mobilized and retracted medially and cephalad. The hepatic flexure is taken down using sharp dissection. The right colon and hepatic flexure are now completely mobilized and retracted medially and cephalad. The periumbilical port is enlarged, and the mobilized segment of bowel is exteriorized and inspected. The bowel is divided using the GIA staplers, and a side-to-side, functional end-to-end anastomosis is created in the usual manner.

Laparoscopic colon surgery has become an important part in the surgeon's approach to colon disease. The cadaver can be used as an effective model to educate student laparoscopists outside of the operating room.

Successful Treatment of Ileocolonic Intussusception with Laparoscopic-Assisted Right Hemicolectomy: A Case Report

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ABSTRACT

Objective: To illustrate the technique of the right hemicolectomy using the aid of laparoscopic technology in the setting of intussusception with a partially obstructed alimentary tract.

Patient History: A 76 year old frail white female presented with a one-year history of intermittent abdominal pain, nausea, vomiting, and diarrhea. At the time of admission, she was diagnosed with hypokalemia and theophylline toxicity. She had a strong history for chronic obstructive pulmonary disease secondary to tobacco use.

Work-up: To further determine the cause of her abdominal pain, she completed both a Barium Enema and a Computerized Tomography Scan of the abdomen and pelvis. Both of these tests supported the diagnosis of ileocolonic intussusception.

Methods and Procedures: The patient was taken to the operating suite, where exploration was performed via a laparoscopic approach. The operative findings were that of an impressive ileocolonic intussusception. Mobilization of the right colon and hepatic flexure was performed with laparoscopic assistance prior to an extracorporeal resection and anastomosis.

Pathology: The intussusceptum was a large villous adenoma surrounding the appendiceal orifice. The intussuscepiens was the ascending colon. The final pathology revealed a moderately differentiated adenocarcinoma arising in a villous adenoma measuring 5.5 x 5 x 2.3 centimeters. The tumor invaded into the superficial submucosa in several different foci. Zero of nine lymph nodes contained metastatic deposits.

Conclusions: A laparoscopic approach is an option in resections involving intussusception even in the face of an obstructed alimentary tract.

A 3-Trocar Midline Approach to Laparoscopic-Assisted Colon Resection

Medhat E. Allam, MD, Richard Fogler, MD

ABSTRACT

Objectives: The purpose of this videotape is to present an interesting modification to the trocar placement sites for laparoscopic-assisted colon resection. This modification allows for the incorporation of all trocar sites into one midline incision for specimen extraction and bowel anastomosis.

Methods: In this technique, three trocars are usually inserted over the midline, one inch apart from each other. The middle trocar is always placed through the umbilicus. The camera is introduced via the caudal-most trocar for right colon operations, and via the cephalad-most trocar for left colon operations. A bowel grasper is used via the middle trocar to retract the colon and expose the lateral peritoneal attachments, which are then incised by the Endo shear scissors. The grasper moves upward and the scissors are used to free more colon. The gastrocolic ligament is transected with Harmonic scalpel or Endo GIA. When the segment to be resected can reach the intended midline incision without tension on the mesocolon, the laparoscopic part is considered successful. The trocars are then removed and an incision connecting their sites is made through which the colon is eviscerated. Resection and anastomosis is then done as in standard surgery.

Conclusions: In our opinion, trocar placement sites should serve four main goals: 1) provide an easy access to the surgical field; 2) facilitate and harmonize the communication between the surgeon and assistant and, if possible, eliminate the need to work against the camera; 3) to be fashioned so that they can be connected together for specimen extraction and/or anastomosis; and 4) allow for rapid conversion to open surgery in case of uncontrollable bleeding. By placing three trocars in a midline configuration as described above, all these goals can be accomplished in addition to the superior cosmetic outcome.

Laparoscopic Wedge Resection of Perforated Gastric Ulcer

Medhat E. Allam, MD, Richard Fogler, MD

ABSTRACT

Objective: The purpose of this videotape is to encourage surgical residents and interested surgeons to maneuver around difficulties that are encountered during emergency laparoscopic surgeries such as perforated gastric ulcer. It also helps to acquaint them with the different tools available for laparoscopic surgery.

Methods: This videotape presents a 60 year old female whose admitting x-ray for abdominal was unremarkable. The repeat x-ray, done after eight hours, revealed free air under the diaphragm. On laparoscopic exploration, the diagnosis of perforated gastric ulcer on the anterior gastric wall was established. An attempt wedge resection to rule out malignancy was undertaken. The trocar position in the subcostal area prevented the proper application of the trocar to the inflamed gastric wall. Also, the small distance between the jaws of the commonly used Endo GIA 30 hindered this attempt. However, these difficulties were dealt with by placing a trocar in the left lower quadrant as well as by using the Endo GIA 45.

Conclusions: Many difficulties are facing dedicated laparoscopic surgeons. Most of these difficulties are due to the novelty of this type of surgery and the limited laparoscopic training currently available. The first instinct for most of us in difficult cases is to convert to an open procedure. However, careful analysis of the problems and reassessment of the tools being used might bring out the simplest solutions. In this particular case, the knowledge of the different tools available made accomplishing the surgery possible.

Tri-Trocar Technique for Laparoscopic Electro-Dynamic Cholecystectomy (TTLEDC)

Saleh A. Al Khuwaitir, MD

ABSTRACT

This study was carried out in King Khalid University Hospital, Riyadh, Saudi Arabia, in May of 1997. Its aim was to develop the tri-trocar technique for laparoscopic cholecystectomy using an electro-dynamic dissector and only three trocars.

Twenty-one patients with symptomatic cholithiasis underwent TTLEDC. The trocars sizes were 5.0, 10.0, and 10.0 mm, respectively. The patients were positioned supine on the operating table. All underwent surgery according to the Langenbusch procedure modified for the purpose of laparoscopic electro-dynamic cholecystectomy. The Al Khuwaitir catheter, 2 mm in diameter and 15 cm in length, was inserted under vision via the umbilical route for carbon dioxide insufflation of the intraperitoneal space to avoid injuries to the viscera and to achieve a reduction in cost. Dissection was performed by Rotor Rosettae using waterproof laparoscopic electro-dynamic tools as published in the *Journal of Medical Science and Research* 1997:25;425-427. Diathermy was excluded because of only minimal bleeding during the procedure.

The results showed that TTLEDC did not affect the surgeon's thumb as measurements of pre- and postoperative circumference remained the same. None of the patients suffered a complication during the procedure. Heat damage around the surgical field, heat dissemination from the point of the application and smoke could be avoided. The average hospital stay was two days. All patients were followed for six months and remained asymptomatic.

In conclusion, we believe TTLEDC to be the procedure of choice in laparoscopic cholecystectomy surgery.

Laparoscopic Bassini's Repair

Abdullah Al-Dohayan, MD

ABSTRACT

Objective: To determine the outcome and results of laparoscopic Bassini's repair in 100 patients with 108 inguinal hernias.

Methods: Laparoscopic Bassini's repair was done for 100 patients in King Khalid University Hospital, Riyadh, Saudi Arabia, from June 1995 to December 1997. The procedure is done percutaneously, guided laparoscopically using the AlKhuwaitir-AlDohayan needle.

Results: The procedure was performed for 97 males and 3 females (mean age 33 years). The mean operative time was 23 minutes. Four recurrent hernias were treated by the same method. The mean hospital stay was 1.2 days, and most of the patients returned to work within seven days.

Conclusion: The early results of Bassini's laparoscopic repair has shown safety, simplicity and economic value.

Laparoscopic Placement of a Drain in Laparoscopic Procedures

Abdullah Al-Dohayan, MD

ABSTRACT

Objectives: To report my results with the technique of placing a drain in laparoscopic procedures.

Methods: Laparoscopic placement of drains were performed for 68 patients in King Khalid University Hospital, Riyadh, Saudi Arabia in 55 laparoscopic cholecystectomies and 13 laparoscopic

splenectomies. After finishing the primary operation, a grasper was introduced through the most medial working port passing through the lumen of the most lateral working port until the arms of the grasper passed but outside the skin. The most lateral port was removed, and the drain was grasped and pulled inside the peritoneal cavity and placed in the Morisson pouch.

Results: The method is fast and easy, and larger drains can be used.

Conclusions: This technique can be used for most laparoscopic procedures.

Minimal Thoracoscopic Sympathectomy

Abdullah Al-Dohayan, MD

ABSTRACT

Objective: The purpose of this study is to compare the efficacy and safety of thoracoscopic cutting of post-ganglionic and transthoracic endoscopic sympathectomy. The work was done after performing thoracoscopic sympathectomy for 100 patients.

Methods and Procedure: I managed 38 patients complaining of hyperhydrosis in King Khalid University Hospital, Riyadh, Saudi Arabia. The procedure started by diathermizing post-ganglionic of the second, third and fourth sympathetic chain. The sympathetic chain was excised. The hand temperature was recorded during the procedure.

Results: The first procedure rises the temperature 2-3°C. In contrast, the second technique rises the temperature 0-5°C more.

Conclusion: Cutting post-ganglionic sympathetic nerve fibers may replace excision of the sympathetic chain.

Laparoscopic Placement of a Peritoneal Dialysis Catheter

Abdullah Al-Dohayan, MD

ABSTRACT

Objective: The purpose of this study is to establish a method of placing a peritoneal dialysis catheter laparoscopically.

Methods: Eight patients underwent laparoscopic placement of a peritoneal dialysis catheter in King Khalid University Hospital, Riyadh, Saudi Arabia. The procedure was performed via two incisions: a 1 cm incision was made infraumbilically and a 0.5 cm incision was made 6 cm lateral to the first incision. The catheter was placed under vision.

Results: Dialysis can start within 48 hours.

Conclusions: Laparoscopic placement of a peritoneal dialysis catheter is safe and easy and can replace the open technique and the percutaneous placement of catheters. ■